

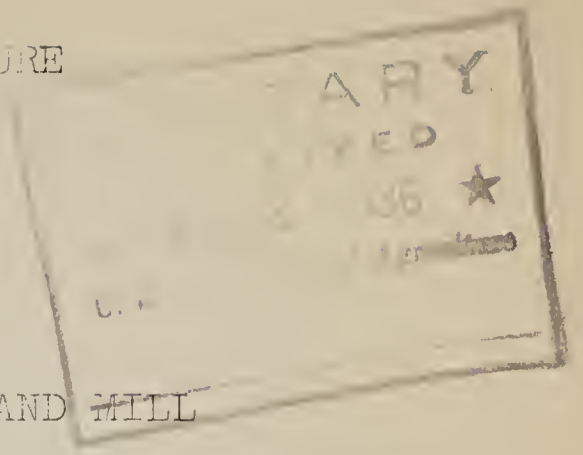
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U. S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
FOREST PRODUCTS LABORATORY

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AN IMPROVED DESIGN FOR A PORTABLE BAND MILL

The attached photograph shows a model of a portable band mill being developed at the Forest Products Laboratory. The unit embodies several radical departures from standard mills which should enhance portability. Because of these unique features endorsement of the unit in the practical field must be held in abeyance until the specifications being drafted can be converted to reality and the mill tested under field conditions. This mill is not on the market nor should it be accepted for use until an experimental unit has been made and tried out under various operating conditions. The Laboratory aims to have an experimental unit made up at the first opportunity. The traveling saw is not a wholly new approach, as the Laboratory engineers in the course of their work found that this feature was used in a machine built more than fifteen years ago but apparently never carried to perfection beyond the initial stage.

The mill is mounted on wheels. Moving requires simply that the blocks steadying the front bolster be removed, the tractor hooked on, and the entire unit pulled to the next set, whereupon the front end is blocked and the mill is set to go without the need of digging a sawdust pit or levelling the carriage trackway.

The radical feature of this mill is that the log remains stationary and the saw travels its length. The advantages are that the overall length need be only slightly more than that of the log sawn and that the center of gravity is low and along the central axis of the frame, thus enhancing portability.

The movable saw frame is cable-driven with a disk friction double clutch drive up to a speed of 120 feet per minute in the cut and 200 feet per minute return. The power for the band saw wheels is taken from a revolving horizontal bar in the model shown in the cut, although other types of transmission are under consideration. Saw speed approximates 3,000 feet per minute. The 18-gauge saw runs over 42-inch wheels. Both the setworks and dogs are power operated.



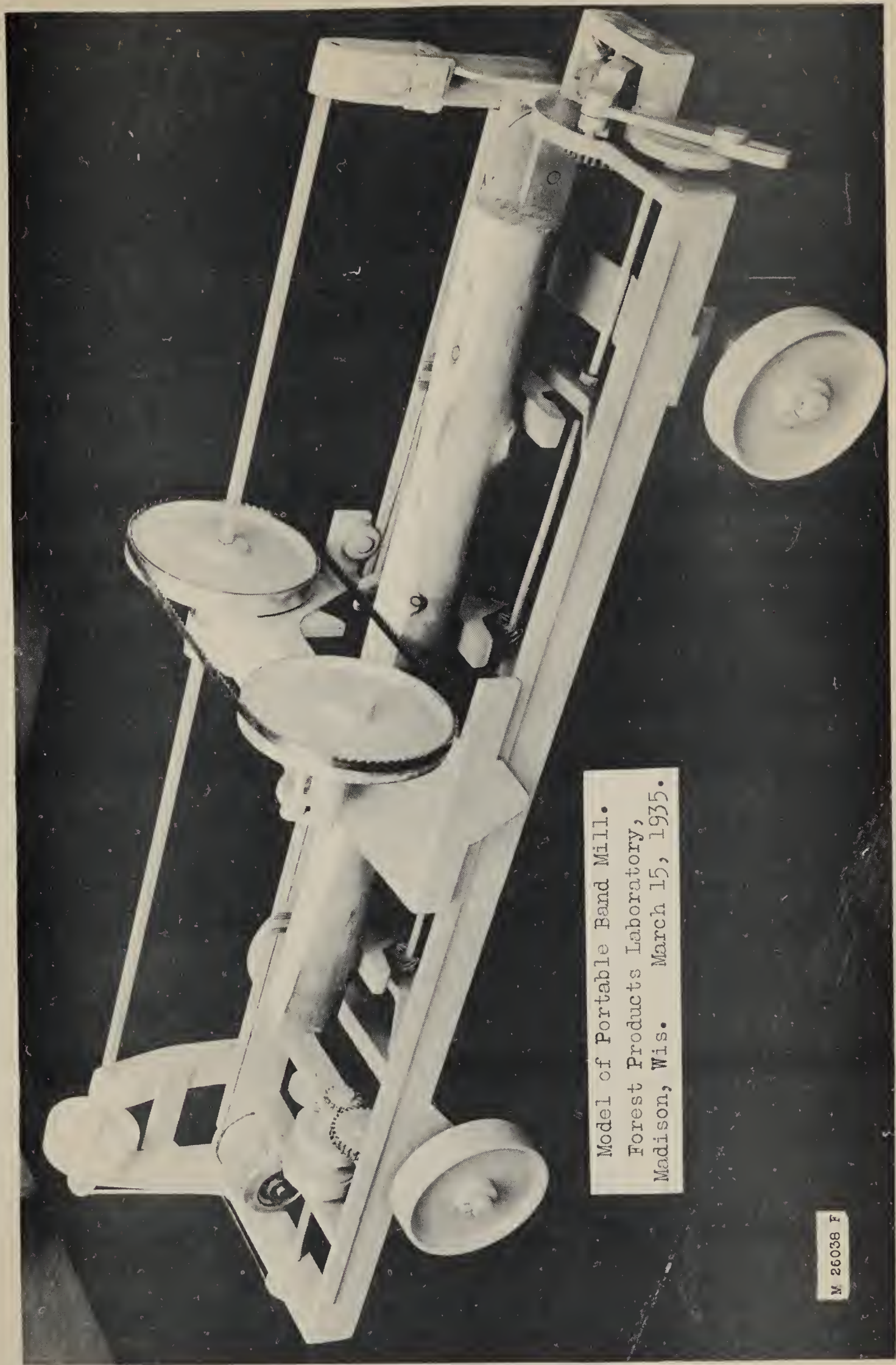
This unit is estimated to weigh approximately 9,000 pounds and is designed to cut about one thousand board feet per hour from logs mainly under 24-inch diameters. It probably requires a five-man crew to service the mill and edger, although possibly a four-man crew would suffice. Estimated power requirements for mill and edger are 30 horsepower. In the design now drafted the power unit is separate from the mill.

The log is rolled on to the knees and dogged by the decker using power dog device, brought to the proper height for slabbing by the sawyer manipulating power networks. The sawyer then manipulates the lever which feeds the saw carriage along the log. After making the cut the returning carriage pushes the slab or board off the end of the frame where gravity rolls take it to the edger, dolly, or burner depending on the product.

Such are the main features of the design now drafted. Additional refinements suggest themselves, as for instance, combining an edger directly on the saw-mill or propelling the saw by an electric or gas motor attached to the moving carriage, either motor conceivably deriving its basic power from wood gas generated from waste wood.







Model of Portable Band Mill.  
Forest Products Laboratory,  
Madison, Wis. March 15, 1935.

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